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BUREAU OF MEDICINE AND SURGERY SUBPROJECTS

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SECTION 4 NARRATIVE OF THE REQUIREMENT AND BRIEF DEVELOPMENT PLAN

MP 43-03X BUMED Education and Training Development Plan

-01. Development of a Modernized System for the Training of Naval Medical Department Personnel

NARRATIVE OF REQUIREMENT

In defensive or offensive action, the most sophisticated weaponry is totally useless in the absence of men to operate it. A human being can hardly be compared with the most complex machinery recent technological advances have produced. The human body is a combination of systems constantly in a state of change, constantly "seeking equilibrium" and constantly interacting with its environment in such a way that, at no two instances in time is it possible to define fully the total characteristics of the system as a whole. Indeed, the mechanisms involved in the functioning of most of man's biological systems are still unknown. For the human body there is no "blue print" to which one can readily refer to locate sources of problems. The physician cannot "go back to the drawing board to redesign" and thereby correct malfunctioning systems. Consequently, the medical officer's job of "trouble-shooting" is infinitely more complicated than that of the engineer, the mechanic, the architect or, for that matter, almost any other professional or technical specialist.

The role of Navy medical personnel in caring for the sick and injured in time of war is well recognized. At present, increasing numbers of trained personnel are required to care for casualties of the current

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crisis. Less recognized is the fact that greater numbers of medical personnel are required to safeguard the health of active duty Navy and Marine Corps personnel. How well the Naval Medical Department can meet its responsibilities in all these situations is directly proportional to the professional and technical competence of its personnel.

A review of the present Navy medical training programs uncovers shortages of qualified instructors and too little time allowed for training either instructors or students. Fractionated program planning has resulted in an undesirable heterogeneity in medical training which includes variation in subject matter, in evaluation criteria and, consequently, in the eventual performance levels of medical personnel in particular assignments. Combined, these problems present a picture of the present Navy medical training system dominated by duplication and inefficiency. Designed in the distant past and utilizing teaching methodologies of that era, it cannot meet today's continuously increasing needs for fundamental training in the medical specialties. Furthermore, on-going research in the medical field and its allied sciences has resulted in a virtual "explosion" of knowledge, and only a mere trickle of this information reaches the practicing Navy physician and the medical technical specialist.

Today's system for training Naval Medical Department Personnel must meet today's pressing needs and anticipate tomorrow's requirements. It must be capable of training in an economical and efficient manner the

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increased numbers of professional and technical personnel required. The subject matter must cover the breadth and depth of the field of medicine and its allied technical specialties. Furthermore, training materials must be readily available, even in the most remote locations.

A training system designed to meet these requirements must include instructional materials for all training situations, whether self-instruction, small or large group programs or mass-media techniques. From the marriage of sound learning theory concepts with the instrumentation of modern communication technology, such an effective medical training system will be born.

Training programs for medical corps officers as well as the medical technical specialists demand immediate attention. Since in modern medical practice the physician's diagnostic decisions depend heavily upon analyses made by the technical specialist, training programs for both of these specialties must be developed concurrently. To neglect one or the other will seriously impair the effectiveness of the Naval Medical Department. Furthermore, the overlapping nature of the subject matter for the physician and the technical specialist points directly to the wisdom of developing these training systems at the same time and location.

The development of training systems to meet these requirements of the Naval Medical Department demands the establishment of an "in-house" capability for the following reasons:

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1. The comparatively few on-the-shelf programmed materials in the medical sciences have not been designed to achieve our highly specialized objectives. Few have been validated, most are tedious ("linear or branching" text-book-type), and none exploit the training capability of modern communication media.
2. Special contractual services for programmed instructional materials are extremely costly and for some specialties, unavailable.
3. On a Navy-wide basis, centralization of efforts can eliminate duplication of efforts in program preparation. Moreover, inefficient training due to fractionated program planning will be replaced.

The success of this project will depend largely upon the caliber of the personnel attracted to participate in its development. The positions of leadership require well-trained specialists with considerable experience in the medical profession and its technical specialties. Consequently, the Civil Service structure for this program must include grade levels that will attract personnel competent in these highly specialized and technical areas.

The system outlined in this development plan will provide training for all medical department personnel, unhampered by time, place and duty assignment. The extent of its training capability will be

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unlimited. Individual training in the medical specialties will be accelerated through self-instructional and modernized teaching methods. Man-hours will be saved through eliminating duplicated efforts now necessitated by the independent generation of "in-house" teaching programs. Efficiency and economy will result from the selective use of experienced personnel to prepare teaching programs utilizing tested instructional techniques. The most authoritative medical technical information will be available to all medical department personnel. Centralized program development will permit standardizing the medical training available at various locations at high proficiency levels. Finally, it will allow rapid response to new emergency demands on the Navy medical training programs.

The life span and potential growth of the training system that will evolve from this project are limitless. When the particular subject matter areas considered in this study have been completed and an efficient and productive team has been assembled and trained, projects to design training materials for other areas of medicine and its allied technical specialties can then be initiated.

BRIEF DEVELOPMENT PLAN

The "in-house" capability for the preparation of the required medical technical instructional materials will be developed by forming three teams of personnel:

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TEAM 1 - MEDICAL OFFICER TRAINING TEAM

This group will be charged with the responsibility of preparing instructional materials and programs for medical officers in Tropical Medicine and in Military Medical Practice. (Note: the tropical medicine aspect of this project was approved in the second quarter of FY 67 and funded at 64K for that year. Personnel recruitment for this aspect of the project is now in progress.)

TEAM 2 - MEDICAL TECHNICAL SPECIALIST TRAINING TEAM

This group will be charged with the responsibility for preparing instructional materials and programs for technical specialists. This team will begin with the development of training programs for clinical laboratory technicians.

TEAM 3 - COMPUTER ASSISTED INSTRUCTION TEAM

This group will be charged with the responsibility for developing self-instructional materials for those numerous medical specialists for whom time, duty assignment and/or location precludes their receiving group instruction. This team will plan and develop training programs for the Naval physician and the technical specialists as well.

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The specific technical task assigned to each of these teams (sub-systems) is outlined in Section 8. The training teams will function under the immediate supervision of a subject-matter specialist, a capable and experienced physician. The interrelationships among personnel are shown in the Management Plan in Section 5. In the development of this project, each team will progress through a sequence of phases outlined below:

PHASE I - PRELIMINARY PHASE: PERSONNEL RECRUITMENT AND ORIENTATION

The success of this project will depend upon the caliber of the personnel in each team. The acknowledged shortages of trained personnel in the medical sciences make it extremely difficult to staff these teams with individuals trained in medicine and experienced in education, charged with a dynamic spirit and imagination, and highly motivated to provide the essential aggressive thrust to this project.

The subject matter personnel in this project must be well qualified and experienced in the medical field and its allied technical specialties. Well qualified in techniques of effective teaching, they must have a profound understanding of, and dedication to, the concepts of programmed instruction as applied in a multi-media approach to a training system. Although personnel with these qualifications are extremely scarce, they must be found and attracted to these positions.

During this phase of the project, an exhaustive search for the most

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competent personnel will be conducted. If necessary, on-the-job training will be arranged to include techniques of programmed instruction and familiarization with the various communication media. Personnel recruitment for this project will be guided by the well-spoken expression: "The mania for immediacy results in the menace of mediocrity." In this phase, judicious selection will be applied in the recruitment of the personnel; time, patience and unstinting effort will be used in their orientation and indoctrination toward the project objectives.

PHASE II - DESIGNING PHASE

The job requirements for the training mission of each of the three teams in this project will be determined. The determination of the respective skills and knowledge the professional and technical specialists require in order to perform at high levels of efficiency will be made through standard job analysis techniques when appropriate. In cases of programs for medical officers where no guidelines are available, personnel responsible must first develop appropriate procedural patterns of job analysis.

From the skills and knowledge identified in the job requirement, the training objectives of the instructional programs will be determined. Spelled out, they are the specific terminal behavioral patterns required at the completion of training. They will define the conditions under which the required performance will be expected, as well as the criteria

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of acceptable performance.

Each team (sub-system), at the close of this phase, will have:

1. Constructed the behavioral objectives of its assigned training mission.
2. Identified and circumscribed the limits of the subject matter areas that will be included in the finished programs.
3. Designed the patterns for the instructional programs as well as those for testing, evaluation and validation studies.

PHASE III - PATTERN DEVELOPMENT

Prototype teaching programs designed to meet the specific training objectives will be developed. The project as developed by each team will involve the "systems" approach to instruction. However, efficiency and effectiveness will be given primary consideration. Consequently, the complexity (and diversity) of the media employed in reaching particular sub-goals of the project will be in direct proportion to the complexity of the concept and/or skill to be learned in the specific behavioral objective.

Recently developed educational techniques and concepts, based upon well substantiated principles of learning psychology, will be utilized. All teaching materials will be screened for teaching effectiveness. Testing instruments will be developed simultaneously.

All subject matter included will be verified for accuracy, appropriate-

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ness and necessity. Teaching programs will be designed to allow for continual up-dating at a minimal expense. At the close of this phase, the small-scale testing and evaluation program will be planned and scheduled.

PHASE IV - SMALL-SCALE TESTING AND EVALUATION

The experimental programs will be tested on small groups of students at the Naval Medical School. Arrangements will be made for control groups to receive the same subject matter and testing program. The teaching effectiveness and efficiency of the experimental programs will be compared with present instructional techniques.

Program evaluation will include objective data obtained from the testing program. It will also include subjective critiques obtained from both instructors and students. From this evaluation study, sections of the subject matter presentations which require revision and refinement will be identified. In addition, the vaildity and reliability of the testing instruments will be examined, and problem areas will be identified.

PHASE V - PROGRAM DEVELOPMENT

Revision and refinement of experimental instructional programs as well as their testing and evaluation procedures will be made. As these revisions are prepared, they will continue to be tested on individuals until assurance has been received that the refined instructional programs and their evaluation procedures achieve the stated objectives with the highest degree of efficiency. During this phase of the project, manuals

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for instructors will be developed. These will include detailed directions for utilization of the instructional materials. The instructors for the experimental groups will be carefully oriented in the procedural techniques for utilization and evaluation of the new programs. Thorough indoctrination of instructors will be essential to a sound testing program. These manuals will contain evaluation questionnaires for the students. At the close of this phase, arrangements will be made for large-scale testing and evaluation of the revised instructional materials at selected Naval Medical Department Activities, to determine their teaching effectiveness in highly diversified situations. Efforts will be made to establish control groups at representative locations for comparison.

PHASE VI - WIDE-SCALE TESTING AND EVALUATION

This all-inclusive evaluation program will be designed to yield objective data on teaching effectiveness as well as student and instructor acceptance. At the same time, related administrative problems will be identified and analyzed.

PHASE VII - REVISION AND REFINEMENT OF DEVELOPED PROGRAMS

Revision and refinement of teaching materials, as deemed necessary from the wide-scale evaluation studies, will be accomplished during this phase. Results of validation studies will be analyzed, and all necessary revisions and reorganizations of subject matter will be made. This evaluation and refinement program will continue, and the revised materials

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will continue to be tested, until the training programs developed can be guaranteed to deliver the defined behavioral objectives.

This phase will be concluded with a general critique of the entire project and formulated recommendations for Navy-wide utilization of the developed training programs as well as a suggested schedule for future development.

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MP 43-03X: BUMED Education and Training Development Project
02: The Education Program of the Naval Dental School

NARRATIVE OF REQUIREMENT

The primary educational objectives of the Naval Dental School are: (1) Graduate and Postgraduate Programs in General Dentistry; (2) Graduate Programs in the various specialties; and (3) Continuing Education Programs in Dentistry.

GENERAL DENTISTRY PROGRAM

The graduate program in general dentistry is designed to educate dental officers. They will be stimulated in this education to have, upon graduation from the course, the knowledge, understanding, wisdom, skill, and the professional attitudes to: (1) diagnose and treat those dental conditions within the capabilities of a general dentist; (2) know when to refer patients to the various specialties for treatment of the more complicated dental conditions; (3) be able to teach patients, auxiliary personnel and other professional personnel in oral health and other preventive procedures; and (4) be a continuing student.

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SPECIALTY PROGRAMS

The graduate programs in the various specialties are designed to educate dental officers. They will be stimulated in this education to have, upon graduation form the course, the knowledge, understanding, wisdom, skill, and the professional attitudes and habits to: (1) diagnose and treat those dental conditions defined by the particular specialty; (2) to know when to refer patients to other specialties; (3) be able to teach patients, auxiliary personnel and other professional personnel in oral health and other preventive procedures; and (4) be a continuing student.

CONTINUING EDUCATION

The continuing education courses are designed to acquaint general dental officers and/or the specialist with the most recent, recognized or approved, diagnostic, treatment and preventive procedures in the various fields.

BACKGROUND

In these definitions the five attributes toward which the education programs are designed have definite meanings and provide challenging goals.

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Knowledge is the ability to repeat or imitate a book passage, a lecture and/or a demonstrated procedure.

Understanding is the ability to use knowledge to solve problems.

Wisdom is use this understanding and to exercise proper judgment.

This will include the independent capability to learn from colleagues, books and experience.

Skill is the physical proficiency to perform dental operations.

The professional attitudes include concern for the individual, integrity, desire to learn, objectivity, and the desire to teach patients and assistants.

BRIEF DEVELOPMENT PLAN

1. Currently, the hardware for CAL, Computer Assisted Learning, is being perfected at a more rapid pace than the software, or knowledge and methods to use the equipment. Consequently, intense study of those recently developed pieces of equipment and the methods for their use will be made. Implementation of the CAL programs will be made. Following this a series of evaluations and subsequent

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modifications will be developed before a final evaluation to determine the success or failure of the original hypothesis, i.e., CAL methods will facilitate meeting the Naval Dental School objectives by reducing the time per student in education programs. The professional profile of the graduates of the program will also be observed in the attempt to evaluate the effectiveness of the education experience.

2. The cost of developing and maintaining the potential program cannot be predicted at this time.

SECTION 4
MP 43-03X: BUMED Education and Training Development
03: Development of a Comprehensive Medical Service Corps Training Program

NARRATIVE OF REQUIREMENT

Training for Medical Service Corps officers is in the administrative, military, or medical allied sciences fields. The need for an effective training program encompassing all of the professional disciplines, and management areas in which Medical Service Corps officers are engaged is clearly recognized. However, due to the limited number of authorized training billets and funds for MSC training in past years, it has not been possible to critically analyze the effectiveness of training received except as reflected in the performance of individuals who have received such training. Therefore, a traditional approach to the training situation has been followed.

Since the establishment of the Medical Service Corps in 1947, the Corps has increased in strength with corresponding increases in demand for additional responsibilities in various scientific and management areas. However, budgetary and billet restrictions have not allowed a proportionate increase in the training program. The existing training program for Medical Service Corps officers consists of the following:

a. A military orientation course is convened each quarter at the Naval School of Hospital Administration to introduce newly commissioned officers to military life and to prepare them for military duties and responsibilities required of all naval officers.

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b. The U. S. Naval School of Hospital Administration, National Naval Medical Center, Bethesda, Maryland, offers a 10 months' course for those officers whose duties will be primarily concerned with the supply and administrative aspects of Navy medicine. Courses are conducted in conjunction with The George Washington University, and credits towards a degree are awarded for those successfully completing the course. Graduates of the course may apply for further instruction leading to a degree in hospital administration, business administration, hotel management, institutional management, or comptrollership.

It is specifically noted that Medical Service Corps administrative officers are trained primarily at the Naval School of Hospital Administration. However, the 10 months' course is not sufficient to permit those officers to complete all the upper division level courses, thereby denying them the benefit of those courses so necessary for them to perform most effectively in their assignments in higher managerial positions. Moreover, due to quota limitations for training billets, all Supply and Administration officers cannot be assigned to this school. Therefore, these officers must obtain their formal training entirely on a part-time, outservice basis. Due to the operational demands of many duty assignments, this process of obtaining training and education is sometimes very difficult and often impossible. However, due to the advancement in the technological and managerial areas, it is considered imperative to provide for the professional development of all officers.

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c. In the military field, MSC officers are assigned to the Amphibious Warfare Course, Marine Corps Schools, Quantico, Virginia, and the Command and Staff Courses, Naval War College, Newport, Rhode Island, as well as the Navy Management Course at the Naval Postgraduate School, Monterey, California. In addition, they attend various short courses on a wide variety of related military subjects. The Medical Allied Sciences cover a broad range of academic disciplines, and training is provided mostly in civilian institutions and usually at the graduate level. Examples of courses taken are: microbiology, radiobiology, virology, physiology, psychology, chemistry and biochemistry, and physics and biophysics. At the undergraduate level, courses are offered in food service management and sanitary science. The students incur a period of obligated service determined by the length of the training program.

d. In furtherance of their educational development, MSC officers make frequent use of part-time outservice training, which is also available for all other Medical Department personnel. The Bureau of Medicine and Surgery provides tuition assistance for the cost of tuition, books, and fees for personnel taking these courses in accredited civilian institutions, provided the courses taken are directly related to their Medical Department duties or are a necessary part of a program leading to a degree which will increase the individual's effectiveness in his duties.

If opportunities were available whereby officers could continue their baccalaureate degree program upon completion of the Naval School of Hospital Administration, the time to complete such training over the present programs would be reduced by at least 70%.

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There is an urgent requirement for short intensive Executive Management courses for senior Medical Service Corps officers to enable them to achieve optimal effectiveness in a minimal amount of time as they assume higher levels of administrative/ management positions. The development of such a course would provide an estimated 50% saving in time required of such an officer to perform his duties in the higher, managerial positions.

There is a continuing requirement for specific skills for which no formal courses are available in the civilian or military environment, such as radiation health. Similarly, new programs in the broad area of automated medical data processing must be considered in order to meet the increasing demands for management in this area. The introduction of programmed approaches to instructional phases should be evaluated where applicable.

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BRIEF DEVELOPMENT PLAN

1. Through a contract effort, relative to the operation of the existing medical care system, the optimal performance requirement of each Medical Service Corps billet will be defined. The typical performance of a representative sample of Medical Service Corps officers will be compared with the optimal performance requirement defined above. Where discrepancies exist between the typical performance and optimal performance, assessment of the extent to which improved or extended training could reduce or eliminate the discrepancies will be made.

2. Through a joint in-house and contract effort, the training objectives, curricula, and methods in all Medical Service Corps areas will be defined as identified in 1 above. This definition will necessarily consider the existing and prospective training resources available through the following ten-year period.

3. Pilot studies will be conducted to determine the feasibility and efforts of implementing the new training objectives, curricula, and methods, and evaluation of the increased effectiveness resulting from it; again relative to the operation of the medical care system.

4. Two approaches would be used: (1) where specific training needs are already known (e.g., radiation health, automated data processing), the relevant technologies will be immediately incorporated in development and evaluation of training program; (2) where more general needs are known but not yet precisely defined, an operational analysis of Medical Service Corps billet requirements will be conducted, followed by development and evaluation of training programs to reduce the discrepancy between requirements and individual skill levels.

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5. Through FY 67-69 new courses in unavailable skills, automated data processing, and senior management training courses, will be developed and tested for feasibility and increased effectiveness. Through FY 67-68, operational analyses of MSC billets will be conducted, and through FY 69-71, the indicated revisions and expansions of existing training programs will be developed and tested.

6. In developing material for required courses, the latest research in the areas of instructional content and procedures will be utilized.

7. Close cooperation of the Naval School of Hospital Administration, National Naval Medical Center, Bethesda, Maryland, and some U. S. Naval hospitals, yet to be selected, will be required to make this research project successful.

SECTION 4
MP43-03X: .04 BUMED Education and Training Development Project
Development of a Modernized Training Program for Nursing And Ward Management Technicians

NARRATIVE OF REQUIREMENT

In Navy Medical Department activities, ashore and afloat, a more effective, efficient, and economic patient care system is perceived as essential. Basic to the fulfillment of this requirement is a re-evaluation and reconceptualization of the system of education and training of all levels of nursing service personnel including the total training system for the Hospital Corpsmen. An analysis of this system has indicated that the introduction of a Hospital Corps ward management and nursing capability is required. The development of this capability has been determined as being dependent upon the establishment of a new technical specialty supported by an appropriate training program that provides the opportunity for Hospital Corpsmen to seek a career in nursing and ward management.

In the past, the organization of the ward unit in naval hospitals has been an outgrowth of expedience, created under pressure during the past fifteen years by the rapid development of modern hospital administration and the changes in practice of medicine and nursing. This resulted in an inequitable distribution of responsibility and authority for the administration of the ward unit. The responsibilities carried by the charge nurse were too numerous; too many people were dependent upon her for guidance, training, and coordination.

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However, the more immediate and urgent reason that the nurse could not escape from the managerial responsibilities was that no mechanism or organizational structure had been established as an alternate way to expedite these responsibilities. The nurses' acceptance of these responsibilities with varying degrees of acquiescence shaped the role which the hospital nurse has assumed.

In order to redefine the present nurse-role and in order to permit the nurse to resume her primary role in patient care, the Ward Management Technician was introduced into the ward arena. This management technician assumed the responsibility for all management activities within the nursing unit which do not require nursing knowledge. Clerical activities, supply functions, housekeeping functions, administrative communication, transportation and coordination functions within the ward include the Ward Manager's primary responsibilities. The Ward Management Technician is becoming the extension or arm of hospital administration on the operational level and assumes the ward management responsibilities which through default have been assigned to nurses. Experienced Hospital Corpsmen are selected for theprogram and receive the programmed training for Ward Manager. This training consists of a systematic curriculum which includes general management and leadership principles, maintenance of hospital environment, inventory control, maintenance of support with other members of the ward team, coordination of other departmental relationships with ward activity, and naval hospital administrative communication.

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The Nursing Technician program, a second sub-specialty within the program, makes possible the emergence of a group of Hospital Corpsmen who possess a higher degree of expertise in patient care than is now permitted. The seriously ill patients of the Naval Hospitals require the highest degree of nursing expertise permissible within the system. Because of the lack of opportunity to pursue a Navy career in patient care, and because of the high Corpsmen demands for the Vietnam conflict, most Corpsmen remain in nursing service for less than six months, usually two or three months. The high rate of turnover of Corpsmen who are assigned to the hospital wards makes the development of knowledgeable patient care highly unlikely. Up to the present, the charge nurse, who is frequently young and inexperienced, has attempted to fill the breach by providing to the Corpsmen additional on-the-job instruction and closer supervision.

The Nursing Technician Program developed through this exploratory effort provides the answer to the pursuance of a Navy career in nursing service-patient care and makes possible a practitioner with a higher degree of expertise than has been possible to the present. The program also provides Corpsmen who possess capability to lead a team of Corpsmen and to direct others in the performance of nursing functions.

The training program for Nursing and Ward Management Technicians provides 1) to nursing service personnel, the new skills and knowledge required to cope with the needs of patients injured in combat; 2) to hospital organization, a pattern of operation which will free the

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nurse of hospital administration responsibilities and which will refocus the nurses' efforts on patient care and the teaching of Corpsmen; 3) to hospital Corpsmen, a career opportunity within the patient-care arena with increased job satisfaction resulting from increased knowledge and skill, and 4) to the combat forces, a Corpsman with increased expertise in patient care and increased competence to satisfy their medical needs. As the next step in the training of these technical specialists, an advanced development effort in the use of automated instruction and tests will be undertaken. These will be based on the validated curricula for the Nursing and Ward Management programs and will insure the standardization and uniformity of the programs as they are implemented on a Navy-wide basis.

BRIEF DEVELOPMENT PLAN

In this Advanced Development Plan, the application of the findings derived from the Exploratory Research phase of the project will be implemented. The research team identified the tasks appropriate to the Ward Manager position and translated those tasks into a relevant curriculum. The required dynamism of such a curriculum necessitates a constant re-evaluation and revision to perfect its relevancy and its achievement of the identified objectives. Both a longitudinal design and a cross-sectional analysis was selected for this study. The critical parameters, which were identified in the exploratory phase, provided the focus for the pre-experimental evaluation of the selected nursing division. These critical parameters included

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application of the following measurements: Interval activity analysis distribution, patient and personnel satisfaction, patient welfare scales. The application of these measurements to a comparable control group provided an additional means of comparing the effects of the experimental variable - The Ward Management Technician and the Nursing Technician.

Since organizational change usually produces immediate and latent unpredictable effects, it is considered expeditious to introduce the variable in several stages. The gradual introduction of the critical variable into the experimental group is considered the least traumatic to the ongoing operation of organization.

The methodology of the project during the Exploratory Development Stage included the following steps:

1. The evaluation of the present operation to determine the present task distribution and to ferret out the tasks appropriate to the Ward Manager and Nursing Technicians.

2. The selection of the critical parameters, such as:

   a. Activity Distribution - Interval Activity Analyses

   b. Personnel Satisfaction - Abdellah

   c. Patient Satisfaction - Abdellah

   d. Brodt Patient Welfare Scales

   e. Cost

   f. Others, such as, Nurse Expectation for Ward Manager

3. The selection, and development of instruments with capabilities to gather the significant data for pre- and post-evaluation.

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4. The development and implementation of the most relevant curricula for the Nursing and Ward Management Technicians.

5. The selection of Hospital Corpsmen as candidates for the Nursing and Ward Management Technician Program.

6. The introduction of the Ward Manager in graduated phases.

7. Periodic analysis of experimental and control groups application of the critical parameters.

8. The introduction of the Nursing Technician in graduated phases.

The sequence of operation during the Advanced Development phase includes:

1. The conversion of the revised curricula for Nursing and Ward Manager Technician Programs into television and computer-aided instruction:

a. The development of criteria for content selection for translation into CAI and PI by automated instructional media specialists in collaboration with the course content specialist. Course content specialists will be selected who possess knowledge in depth of each particular content area.

b. The application of those criteria to the critical course content through the coordinated effort of content specialists and automated instruction specialists.

c. Identification of content areas which require adjustment so as to facilitate the adaptation of technological innovations into the teaching programs.

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d. Preparation of instructional personnel at each naval facility through training and practice when the program is to be implemented for use of the computerized instruction and video education.

e. Enabling the concerned instructional personnel to accept and appreciate the benefits of each type of automated instructional device to be used.

f. Enabling the instructional personnel and students to make full employment of all of the capabilities of the requisite automated instructional devices.

2. Determination of the most effective and achievable programmed content in terms of learning outcomes.

a. Evaluation of all feedback on instructional program and learning effectiveness and adjustment of the program of instructions according to the evaluated feedback.

b. Re-evaluation of the adjusted program of automated media instruction.

c. Evaluation of the effectiveness of the automated instructional media for independent and remedial study as applied to Nursing and Ward Management Technician program.

3. The recommendation for implementation of the findings resulting from the overall evaluation of the Nursing and Ward Management Technician automated instruction program.

a. Achievement of the maximum effective automated instruction program for Nursing and Ward Management Technicians.

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b. Continuous evaluation of the effectiveness of automated Nursing and Ward Management Technician program in the operational setting of various naval activities.

c. Continuous application of the evaluation feedback in order to update and to keep current the automated programmed instruction for the Nursing and Ward Management Technician programs.

SECTION 4
MP 43-03X: BUMED Education and Training Development Project
05: Development of a Modernized Curriculum for Basic Hospital Corps Schools

NARRATIVE OF REQUIREMENT

In Navy Medical Department activities, ashore and afloat, a more effective, efficient, and economic patient care system is perceived as essential. Basic to the fulfillment of this requirement is a reevaluation and reconceptualization of the system of education and training of nursing service personnel at all levels. That member of the nursing service personnel giving direct patient care in Naval hospitals is the hospital corpsman. The initial education and training of this corpsman is the focus of this subproject. The Basic Hospital Corps Schools are charged with providing the education and training under study.

The Hospital Corps is the enlisted corps of the Navy Medical Department and provides the technical support for that Department. This support includes a variety of functions. The corpsman, as indicated above, administers the direct patient care in hospitals and in the field. He also provides the patient care in other Navy medical activities and the first aid to the injured of the operating forces at sea and with the Marine Corps. The corpsman provides the technical support in the paramedical functions, such as laboratory, pharmacy, operating room, X-ray department. Furthermore, the corpsman may receive an assignment as an administrative assistant, personnel office clerk, typist, photographer, and others similarly distant to the patient care area. The initial preparation for these varied functions is considered to be the responsibility of the Basic Hospital Corps School.

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Hospital corpsmen, on completion of the Basic Hospital Corps School program, are most frequently assigned to large Naval hospitals for continued training and experience in giving nursing care. The amount and quality of this essential on-the-job training will vary with the installation, the personnel, and the conditions extent at the time. Service needs, for example, generally take priority over on-the-job training, and with pressing manpower deficiencies the corpsman may be expected to give patient care for which he does not yet have the expertise. He may also be required to assume duty on ward units where the nursing supervisor is unable to give adequate supervision and guidance of this neophyte because she is responsible for more than one ward. The physician also finds that his responsibility in the clinic, ward or operating room, is too pressing to permit him to give the inexperienced corpsman the direction and surveillance he needs. The senior ward corpsman, to whom the young corpsman should look for example, advice and support, is more than likely a rather recent graduate of Hospital Corps School himself, and therefore hardly qualified to assume the responsibility for the on-the-job training and supervision of the new corpsman. These corpsmen with minimum training in Corps School and with minimum supervision on the job are the personnel who are administering the direct care to the patients in the Naval hospitals and other medical activities.

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SECTION 4 (con't)

These same corpsmen, with a minimum of experience in patient care, will be giving care and first aid treatment to the injured in situations of stress and urgency. Thus, the question, "What system of education, training, and experience will prepare these young men and women for the responsibilities which they are required to assume?".

In times of emergency and military build-up such as that in the Viet Nam situation, manpower needs of the operating and support forces may require that some corpsmen, on completion of the basic Hospital Corps School, be assigned directly into service billets that provide for little or no continued on-the-job training. Thus the ability of corpsmen in such assignments is primarily dependent upon the instructions he received in the Basic Hospital Corps School Program.

Another assignment for some corpsmen upon completion of Corps School is directly to a Class C school. The corpsman thus assigned does not have the opportunity to gain that fundamental skill and proficiency in patient care expected of all corpsmen, with the result that the knowledge and skills gained in Corps School if not used will be lost.

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A number of very basic questions may now be raised about the training requirements for the Hospital Corpsmen, these young post-adolescents into whose care the responsibility for the health and the very lives of military personnel is given. These questions include what must they know and how can they best learn what they must know in a reasonable span of time.

In normal times, the corpsman receives a sixteen-week course of instruction. This instruction includes 548 didactic, or class, hours, primarily lecture to company size groups of 60 men, and 92 hours of laboratory practice. Under emergency conditions that increase the demand for corpsmen, the course may be reduced to twelve weeks of 480 hours of instruction or eight weeks of 320 hours, the reduction in learning experiences being made arbitrarily at each school. The program includes seven courses: Anatomy and Physiology; Principles and Techniques of Patient Care; First Aid and Minor Surgery; Preventive Medicine; Materia Medica and Toxicology; Nuclear, Biological and Chemical Warfare Defense; and Military Requirements. All students take the same courses regardless of background and sex which affects future assignments. Thus, the Corps Waves receive the instruction which prepares for function on the battlefield, an assignment which they will not get. In turn, they fail to receive instruction in the care of women and children although their assignment is most apt to be to Dependents Units.

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The faculty of the Hospital Corps School is comprised of Nurse Corps Officers and enlisted personnel of the Hosptial Corps. Administrative personnel are members of the Medical Service Corps. The Nurse Corps Officers, who have earned baccalaureate or higher degrees, teach Principles and Techniques of Patient Care, and the enlisted personnel teach the remaining six subjects. Of this latter group, approximately 85% are high school graduates; 70% have had the Navy Instructor's Course; 55% have taken the Advanced Hospital Corps Technicians course. It seems incongruous that, while the best-qualified faculty are teaching bedmaking and other simple procedures and techniques, the least-qualified faculty are teaching the complicated sciences of physiology and materia medica and the more advanced procedures of minor surgery.

The stated purpose of the Hospital Corps School is to provide instruction in the basic principles and techniques of direct patient care and first aid procedures. It therefore seems logical to develop a core curriculum around this purpose; to utilize the most modern automated individual and group instruction and testing devices; to establish standard criteria and dimensions for selection of students and certifying satisfactory completion of the program; to set forth faculty qualifications and requirements that will provide the kind of faculty

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needed to effectively accomplish the mission; and to devise feedback methods that provide information about the effectiveness of the program in meeting the established performance requirements in the field.

BRIEF DEVELOPMENT PLAN

There are two phases to this study. The first is a development of a modernized curriculum for the Basic Hospital Corps Schools, and the second is a comparative study of the present Basic Hospital Corps School program and the curriculum or program to be developed.

The brief description of the steps in phase one are found on the pages indicated.

a. Determination of job requirements. p. 4.37

b. Identification of objectives. p. 4.41

c. Development of content. p. 4.43

d. Organization of content and design of curriculum. p. 4.44

e. Design and test of optimal conditions for learning. p. 4.44

f. Test of experimental curriculum. p. 4.48

g. Evaluation of experimental curriculum. p. 4.49

The comparative study in phase two is described on the indicated pages.

a. Description of present Hospital Corps Schools. p. 4.50

b. Comparison of present and experimental curriculum. p. 4.52

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1. Development of the revised curriculum of the Basic Hospital Corps School. The first steps in this project will be directed toward development of a modernized curriculum of the Basic Hospital Corps School. These steps are as follows:

a. Determination of job requirements

The initial step towards a decision about the objectives, the content and conduct of the Hospital Corps School curriculum is to obtain definitive information about the job requirements of a hospital corpsman. This step will be accomplished in the following manner:

(1) Information will be obtained on what the corpsman is expected to do and what he does at first and second duty stations, without additional formal instruction or training. This will result in a task or job description. The desired information will be obtained by structured interview, questionnaire and observation. The structured interview and the observation will furnish the information upon which the questionnaire will be based. The instruments will incorporate forced-choice questions. All instruments will be devised and then pilot tested at the Naval Hospital, Great Lakes, Illinois as well as one other Naval Hospital, probably St. Albans or Memphis. The questionnaire will be distributed to officers in the various Corps who have knowledge of

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the corpsman's duties (Ward Medical Officer, Medical Corps; Supervisor, Head Nurse, Nurse Corps; Personnel Officers in Medical Service Corps) and to members of the Hospital Corps. A 5% sampling of these personnel will be obtained. Information will be sought from the personnel at the various duty stations to which the corpsman may be assigned and for which assignment the Basic Hospital Corps School program is expected to prepare him. The stations to be included in the sample are Naval Hospitals, station hospitals, Naval Dispensaries, Dispensaries, field activities, on board ships which carry a Medical Officer, and with the Fleet Marine forces. The sample of stations will be selected by a random procedure in order to provide an unbiased sample. The instrument (questionnaire) will be distributed to designated station personnel selected at random according to position and/or function.

(2) At the present time there is no civilian occupation or job the hospital corpsman can readily assume on the basis of his career in the Navy. A military career pattern may be developed where a corpsman would remain in the nursing field as a general ward

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corpsman or assistant ward nurse when assigned to an activity with ward facilities. This could help qualify him for licensure in the field of practical nursing. An analysis will therefore be made of the requirements for state licensure of practical nurses and of the functions of civilian practical nurses to determine if it is possible and feasible to offer instruction in Basic Hospital Corps School which would meet the legal requirements of the separate states and which would then permit the corpsman to write the examination for licensure as a practical nurse.

The Hospital Corps School curriculum will be developed and designed to meet the needs of the Navy Medical Department and of the operating forces for the services of the hospital corpsman. The regulations and requirements of the individual states for a practical nursing program will be analyzed in terms of their similarity to the proposed content of the Hospital Corps School curriculum.

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Initially information will be sought from the states in close proximity to Great Lakes (locale for the study), namely Illinois, Indiana, Iowa and Wisconsin. The statement of legal requirements for licensure of the individual and the regulations of the State Board of Nurse Examiners for the school or program offering preparation in practical nursing will be secured, reviewed and analyzed in terms of (1) specific (inflexible) requirements affecting curriculum and operation of the school, such as prescribed courses, number of didactic and laboratory hours of instruction, library facilities, qualifications of faculty and (2) the potentiality of the Hospital Corps School meeting such requirements.

Consultation with appropriate state authorities will be sought to determine if certain requirements for a program may be waived or if special ruling may be made for the hospital corpsman.

The statement of the functions, standards and qualifications of the licensed practical nurse will be compared with the job description of the corpsman and the

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objectives of the Hospital Corps School (to be developed). Consultation will also be sought with administrative officials of selected schools of practical nursing in the named states to discover current trends in practical nursing education and current practices in the field.

The study will be expanded to other states if the initial survey in the four named states indicates that such study is warranted and feasible.

b. Identification of objectives

The information obtained in step a. will be analyzed to determine the behaviors (demonstration of evidence of knowledges, skills or abilities, and attitudes) the hospital corpsman is expected to exhibit at the first and second duty stations. An analysis of the identified behaviors (task analysis) will lead to the development of the objectives for the program or curriculum of the Basic Hospital Corps School. The objectives will be stated in behavioral terms, so that they may serve as the basis for formulating the criteria and establishing standards for acceptable performance and for developing

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instruments for judging students' and graduates' performance. The degree of proficiency to which the corpsman must be prepared will also be determined.

An example of the procedure in this step is as follows: The task description indicates that the corpsman gives medications to patients. The objective then may be stated, "A hospital corpsman is able to administer medications." It will be determined if the beginning corpsman is expected to give all medications by all routes with or without supervision. The amount of supervision expected will answer the question of degree of proficiency. In the subsequent step c. the knowledge the corpsman must have to be able to give medications includes: principles of aseptic technique, action of drugs, systems of measurement, routes of administration of drugs, rules for safe administration. The skills he must develop include accuracy in the use of measuring devices, adeptness in hypodermic, intramuscular and intravenous injections. Desirable attitudes to be fostered are concern for patient's comfort and safety and interest in continuing to seek knowledge about drugs, their use and effects.

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c. Development of content

Analyses of the objectives will answer the questions, what knowledges must the corpsman have, what skills and abilities must he develop, what attitudes must he acquire in order to learn or achieve the behavior(s) outlined in the objectives and to function adequately on the job. Implications for learning will then be identified, and that content deemed essential to assure both adequate and optimal performance of Corps School graduates will be determined. Guidelines will be developed to help Corps School officials and faculty make decisions as to the content which may be eliminated when a war emergency demands that the program be shortened to meet the demands of the operating forces.

A further analysis of the data obtained in step a. will be made to determine which of the behaviors the corpsman can learn effectively only in Corps School and which he can effectively learn on the job. It is anticipated that the Corps School will not be able to prepare the corpsman for every contingency or situation with which he should be confronted.

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d. Organization of content and design of the curriculum

The proposed content will be organized into logical sequency blocks for learning, or courses, and an appropriate sequence will be determined to provide continuity of learning. Course content will then be developed and required learning experiences for the students will be selected. Proposals for the design of the curriculum for the Basic Hospital Corps School will be made.

e. Design of optimal conditions for learning

(1) The learner.

The entry characteristics such as intellectual capability, past academic achievement, and social adjustment of the students will be analyzed to determine the learning potential of the recruits, the range of ability and the degree of individual differences represented, and those characteristics which predict success in the Corps School. A correlation analysis will be made between the students' scores on the basic test battery and Hospital Corps School grade average. Such data is available retrospective to 1 January 1965. The analysis will serve as one basis for selection of training methods to be employed and for making recommendations for selection of trainees.

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The problem of motivation of the student to learn will be studied. For example, would an early introduction of the learner to the hospital and to patient care give him a conception of his future responsibilities and increase his motivation to learn? Does provision for flexibility of advancement increase the student's motivation? How effective in increasing motivation to learn is immediate knowledge of results of his learning efforts? The answers to these and similar questions will be sought.

(2) Instructional effectiveness.

Proposed content for the curriculum will be analyzed in terms of appropriate methods of presentation. Criteria for such an analysis will be developed. Traditional methods of teaching (lecture, demonstration, etc.), and newer training procedures, automated learning devices (film presentation, television, programmed instruction. computer-aided instruction) will be tested and evaluated. Criteria by which to judge the effectiveness of learning and the efficiency of training methods employed will be developed. These criteria will be applied continuously

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during the development and testing of the various learning devices and training methods. Data will be obtained on variables affecting students' performance in classroom, laboratory, clinical setting, simulated situations, and with self-teaching instructional materials. Techniques employed for immediate feedback will include pre- and post-testing of individual learners in knowledge of content and in proficiency of performance of manual and manipulative skills, timing of student's responses, comparative rating of experimental and control groups of students, measurement of speed of learning, tests of reliability of training devices used, evaluation of effectiveness of individual audio visual aids, etc. It will be important to discover the amount of overlearning needed so that the corpsman can function effectively in the stressful situations to which he will be assigned. The ultimate test of instructional effectiveness is the on-the-job performance of the graduate of the Hospital Corps School. An instrument for measuring

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and rating this performance will be developed. Procedures for routine feedback on the graduates' performance in the field will be established.

(3) Logistics requirements.

Faculty. What is the number of faculty needed? What should be the teaching load of each? What are the desired qualifications for Corps School instructors? What prior preparation and experience do faculty members need? What is the effect of the teacher's motivation for teaching on the motivation of students for learning? What effect does the relatively rapid turnover of faculty have on the effectiveness and efficiency of the mission of the Hospital Corps School? These are some of the questions for which answers will be sought and solutions proposed.

Classrooms. What is the number needed? What are the recommended architectural features (size, flexibility of use, lighting, fixed and movable equipment, location, ventilation)? What changes, if any, are needed in present set-up to initiate the use of computer-aided instruction?

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Equipment and facilities. What equipment and in what amount is needed to assure effective learning? What other facilities will be required? Access to a hospital, for example, is a requirement if students are to learn to give care to patients. What training devices are recommended? What are the maintenance requirements of the facilities desired? What is the maintainability of equipment and devices to be used? What maintenance personnel will be needed?

(4) Contingency analysis.

An analysis will be made of the non-routine situations with which the system will have to cope. The effect of these situations on the efficiency and effectiveness of learning will be evaluated.

f. Test of experimental curriculum

The curriculum as developed in the foregoing steps will be put into operation with an experimental group of students. The company which enrolls in Hospital Corps School, Great Lakes the week the new curriculum is to be initiated will serve as the experimental group. Detailed and complete data will be collected and analyzed. Another company enrolled at the same time as the experimental group may serve as a control group, if that is

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deemed necessary. Experimental program will be repeated, with revisions as indicated, with two additional companies. Comparisons will be made between the performance of present Corps School students and graduates and of the students in the experimental program.

g. Evaluation of experimental curriculum

Evaluation will be constant and continuous and will encompass students' daily performance, periodic performance, final performance (final examination), and performance on-the-job at first duty station and on subsequent assignments. Instruments will be devised by which to judge and rate the performance of students and of graduates.

Evaluation will be made of the effectiveness of teaching methods, learning devices of various sorts, course content, measuring instruments. There will be constant internal feedback. External feedback will of necessity be delayed until experimental companies have reported to first duty stations.

Evaluation procedures will be instituted to determine those conditions optimal for learning.

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2. Comparative study of the present and experimental curriculum of the Basic Hospital Corps Schools.

a. Present Hospital Corps Schools.

Data will be collected to give a complete accounting and description of the organization, operation, and curriculum of the two Basic Hospital Corps Schools at Great Lakes and San Diego. The data to be collected relative to Basic Hospital Crops Schools will include the following items:

(1) Mission

(2) Chain of Command

(3) Location

(4) Organization

(a) Administrative plan - number and qualifications.

(b) Faculty - number and qualifications.

(c) Non-teaching personnel - status, number, responsibilities.

(5) Students

(a) Number admitted.

(b) Frequency of admission to classes.

(c) Number students in a class (company).

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(d) Entry characteristics of students.

(e) Student's typical 24-hour schedule.

(f) Total simultaneous enrollment (number companies, number students).

(g) Academic performance in Corps School (grade average).

(h) Disenrollment - number and reasons.

(i) Students' records - content, methods, disposition.

(6) Curriculum

(a) Philosophy and objectives.

(b) Description of courses, hours at instruction, methods used.

(c) Ratio of faculty to students.

(d) Effectiveness of learning procedures (criteria to be developed).

(e) Academic counseling.

(7) Physical Facilities

(a) Classrooms - number, size, use.

(b) Laboratory - number, size, use.

(c) Instructional equipment - amount, adequacy, use condition.

(d) Library.

(e) Offices - faculty, administrative, clerical, support.

(f) Storage facilities - student records, supplies, etc.

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(g) Clinical Laboratory

Hospital (location in relation to Hospital Corps School).

Availability for instruction of Hospital Corps School students.

Number and kind of patients.

(h) Study areas.

(8) Contingency Factors

(a) Housing facilities for students.

(b) Mess facilities for students.

(c) Recreation facilities for students.

(d) Miscellaneous student regulations (liberty, study hall, military requirements, non-academic demands on students).

(e) Other responsibilities of Hospital Corps School and personnel.

(9) Performance of Graduates

(a) Current procedures for obtaining feedback information.

(b) An instrument by which to evaluate on-the-job performance will be devised.

b. Comparative analysis of present and experimental curriculum.

The analysis for comparative purposes will be in terms of number of hours of instruction required to fulfill the mission of the Hospital Corps School, the number and kind of faculty required, the ratio of faculty to students,

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effectiveness of learning procedures, economy of operation, adequacy of feedback procedures, and on-the-job performance.

3. Recommendations.

On the basis of the data collected for the study, recommendations will be made regarding those activities of the Hospital Corps School which pertain to the effectiveness of the modernized curriculum. Specifically the recommendations will be made in the following areas:

a. Curriculum: objectives, content, teaching/learning methods, procedures for evaluation.

b. Selection criteria for Hospital Corps School recruits.

c. Selection criteria for faculty.

d. Number and kind of faculty needed.

e. Academic facilities.

f. Non-academic facilities.

g. Military-civilian conversion.

h. Guidelines for making decisions about expansion or elimination of content.

i. Evaluation of performance of students and graduates.

j. Establishment and maintenance of procedures for feedback from the field.

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k. Development of appropriate content for educational television and the various modern automated learning devices, including CAI.

l. Plans for initiation and implementation of the revised curriculum.